California Science Content Standards

Life Science Standards

The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. As a basis for understanding this concept:
a. *Students know* cells are enclosed within semipermeable membranes that regulate their interaction with their surroundings.
c. *Students know* how prokaryotic cells, eukaryotic cells (including those from plants and animals), and viruses differ in complexity and general structure.
d. *Students know* the central dogma of molecular biology outlines the flow of information from transcription of ribonucleic acid (RNA) in the nucleus to translation of proteins on ribosomes in the cytoplasm.

Organisms have a variety of mechanisms to combat disease. As a basis for understanding the human immune response:
a. *Students know* the role of the skin in providing nonspecific defenses against infection.
b. *Students know* the role of antibodies in the body's response to infection.
c. *Students know* how vaccination protects an individual from infectious diseases.
d. *Students know* there are important differences between bacteria and viruses with respect to their requirements for growth and replication, the body's primary defenses against bacterial and viral infections, and effective treatments of these infections.
e. *Students know* why an individual with a compromised immune system (for example, a person with AIDS) may be unable to fight off and survive infections by microorganisms that are usually benign